

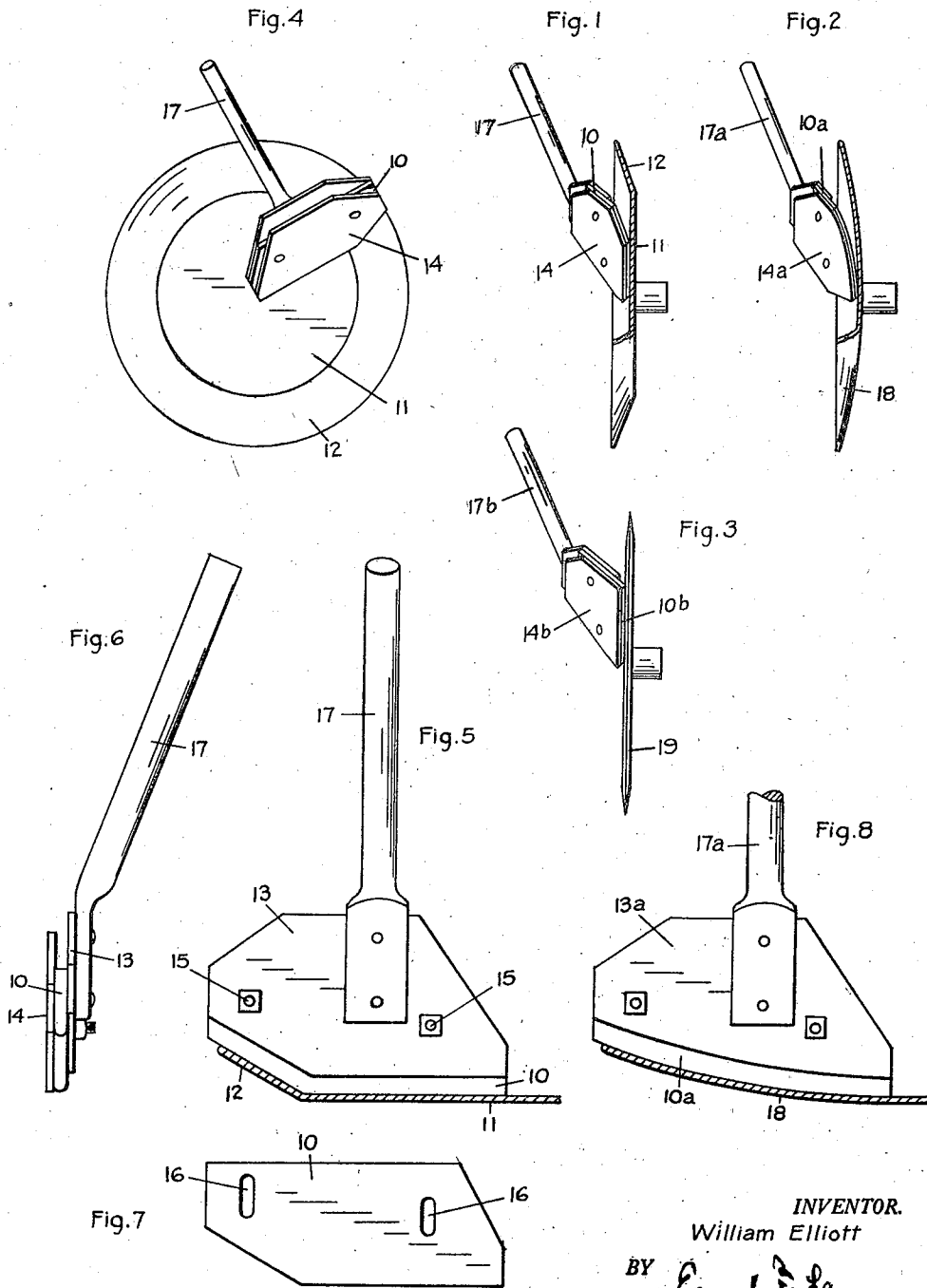
June 30, 1936.

W. ELLIOTT

2,045,762

CLEANING AND POLISHING PAD FOR DISKS

Filed March 5, 1935



INVENTOR.
William Elliott
BY *Emil F. Lange*
ATTORNEY

UNITED STATES PATENT OFFICE

2,045,762

CLEANING AND POLISHING PAD FOR DISKS

William Elliott, Beatrice, Nebr., assignor to
Dempster Mill Manufacturing Company, Bea-
trice, Nebr., a corporation of Nebraska

Application March 5, 1935, Serial No. 9,444

6 Claims. (Cl. 97-223)

My invention relates to disk polishers, its object being the provision of a polisher having a squeegee function on the disk.

One of the serious difficulties encountered by farmers in the use of soil working tools is the difficulty of making them "scour". A clayey soil or a black loam and many other soils contain colloids which adhere tenaciously to the polished surface of steel and they almost immediately begin to set up a chemical action which eventually destroys the polish and which permits the accumulation of soft soil on the earth working tool to destroy its effectiveness. My main object is the provision of a tool which will in a large measure prevent the formation of the colloidal film and which will remove the traces of such film as fast as the film is formed.

Having in view these objects and others which will be pointed out in the following description, I will now refer to the drawing, in which

Figure 1 is an elevational view of a disk and the polishing tool, the disk being viewed in edge elevation and with a portion broken away.

Figure 2 is a view similar to Figure 1 but showing a somewhat different form of disk.

Figure 3 is another elevational view showing the tool with still another form of disk.

Figure 4 is a view in elevation showing the disk of Figure 1 when looking toward the inside of the disk.

Figure 5 is an elevational view of the polishing tool shown in Figures 1 and 4.

Figure 6 is another view in elevation of the same tool as seen when looking at the edge of the squeegee and its clamp.

Figure 7 is a plan view of the squeegee alone.

Figure 8 is a view similar to Figure 5 but showing the tool in the form which is used on the disk shown in Figure 2.

The squeegee 10 shown in Figure 1 is preferably made from belting which consists of a multiple ply fabric which is impregnated with or imbedded in rubber or a rubber composition. It is shaped to conform to the shape of the disk, the form shown at 10 being the form employed in the disk shown in Figures 1 and 4 in which the disk has a central portion 11 in the form of a circular plane and a peripheral portion 12 in frusto-conical form. This necessitates that the squeegee 10 must have a cutaway corner to accommodate itself to the portions 11 and 12 of the disk. It is desirable that the squeegee be of such length and shape and position that it will reach all parts of the disk from the center to the circumference and for this reason the posi-

tion should be radial but it may be non-radial as shown in Figure 4 if the central portion of the disk is not to be polished. This squeegee 10 must be mounted so that its operative edge will be in firm contact with the disk as most clearly shown in Figure 3.

For the support of the squeegee 10 I provide two clamping plates 13 and 14, these two plates being held together in clamping relation by means of the bolts 15. The inside plate 13 is identical in form with the outside plate 14 but the bolt holes are staggered to expose the operative edge of the squeegee. The squeegee 10 is provided with two slots 16 for the reception of the bolts 15 so that the squeegee may be adjusted to bring its exposed edge flush with the operative edge of the plate 14. A rod 17 is bent and flattened at its lower end for attachment to the plate 13 as by bolting or riveting or welding. This rod 17 is adapted for connection to a fixed part of the implement in such position that only the edge of the squeegee 10 will contact with the disk.

It is obvious that the operative edge of the squeegee as well as the corresponding edges of the two plates must conform to the shape of the disk. The disk 18 shown in Figure 2 is curved throughout and it is therefore necessary that the squeegee 10a be curved similarly to the curvature of the disk 18 as shown in Figure 8. In disks of the forms having plane surfaces the operative edge of squeegee 10b is in the form of a straight line as shown in Figure 3.

Regardless of the form of the disk the squeegee must be so positioned that its edge portion will bear against the disk to prevent the formation of the colloidal film and to remove the traces of film as fast as they are formed. The rotation of the disk in the soil will bring all parts of the surface of the disk into contact with the squeegee which thus acts continuously and reaches every point on the surface of the disk at each revolution of the disk. The continuous action of this squeegee tends to develop a high polish on the disk which of itself counteracts any possibility of the adhesion of any film or foreign material of any nature. New earth working disks require considerable time in order to secure the proper earth polish. This squeegee by its action in use produces in an extremely short time and thereafter maintains that desired polish which makes for the most efficient working surface on a disk which it is possible to produce.

The present device is not to be confused with the scrapers in common use. Such scrapers are

designed for the purpose of removing soft soil from the earth working tool but they cannot function to prevent the adhesion of the colloidal film to the steel surface. The difficulty is that these 5 scrapers cannot attack the colloidal film which forms on the polished steel surface and as long as the colloidal film is present the adhesion of soft soil cannot be prevented. These scrapers are usually formed of metal such as steel which does 10 not have the proper contact with the steel of the earth working tool to attack the very thin colloidal film. Thus scrapers are usually made of a material which wears down rapidly due to abrasion and in this respect also my squeegee differs 15 very markedly from the scrapers. The squeegee polishing pad has no abrasive action whatever on the disks and is not abraded by the disk. It has also been found in practice in field work that the damp soil accumulates on the exposed edge 20 portion of the pad between the edges of the plate 13 and the pad 10. Due to the inclined position of the pad relative to the soil working tool, the soil which thus accumulates on the edge portion of the pad has a triangular form in cross section. 25 This accumulated soil becomes compacted and materially assists in the polishing of the soil working tool.

The squeegee must be relatively soft and relatively pliable and relatively compressible since the 30 squeegee action depends very largely on these factors. For example, steel against steel could not be made to form a continuous line of contact. On the other hand, softness or compressibility in 35 too high a degree relative to steel would be fatal to the squeegee function. It is obvious that a few materials other than belting would fall between these limits to perform the function of a squeegee operating against the smooth surface of a rotary soil working disk.

40 Having thus described my invention in such full, clear, and exact terms that its construction and operation will be readily understood by others skilled in the art to which it pertains, what I claim as new and desire to secure by Letters 45 Patent of the United States is:

1. A polishing device for rotary soil working tools, said device including a polishing pad and an arm secured thereto and projecting therefrom, 50 said arm being adapted to be secured to the implement frame with only the edge of said polishing pad pressed against the surface of the soil working tool and with the body portion of said polishing pad out of contact with the soil working 55 tool whereby the rotation of the tool against said pad will polish that portion of the tool determined by the circular path of said pad thereover.

2. A polishing device for automatically removing film from rotary soil working tools, said device including a pad of pliable and compressible 60 material, a plate of rigid and relatively incompressible material secured to said pad and in parallel relation therewith, and means for se-

curing said device to the implement frame with only the edge portion of said pad clamped and compressed at its edge portion between said plate and the surface of the tool whereby the rotation of the tool will result in the polishing of that 5 portion of the surface of the tool contacted by said pad.

3. A polishing device for rotary soil working tools including a pad of appreciable thickness and having an operative edge at the corner formed by 10 the inner face and the end of said pad, said pad being pliable and compressible, a pair of plates of rigid and relatively incompressible material, bolts connecting said plates for clamping said pad therebetween with the operative edge thereof 15 exposed, and means for securing said device to the implement frame with the operative edge portion of said pad in pressing engagement with the surface of the rotary soil working tool.

4. A polishing device for rotary soil working 20 tools comprising a pad of flexible and compressible material adapted to be secured in pressing contact with the surface of the soil working tool and with said pad inclined with reference to the plane of rotation of the tool whereby the rota- 25 tion of the tool results in the travel of said pad on a circular path over the surface of the tool so that minute soil particles will work between said pad and the surface of the tool for imparting high polish to the surface of the tool. 30

5. A polishing device for rotary soil working tools including a pad of pliable and compressible material and of appreciable thickness, one of the ends of said pad having a narrow wall between the opposite faces thereof, a clamp comprising a 35 pair of rigid plates of similar outline for clamping said pad therebetween, said narrow wall of said pad being in alignment with the edge of one of said plates and the other of said plates being offset with an edge thereof spaced from and 40 parallel to said narrow wall of said pad to expose a corner edge of said pad, means for clamping said two plates together with said pad compressed therebetween and an arm secured to and projecting from one of said plates, said polishing 45 device being adapted for pressing contact of said pad with the surface of the rotary soil working tool to exert a thrust in a direction which is inclined with reference to the planes of the faces of said pad. 50

6. A polishing device for removing soil from rotary soil working tools, said device including a pad having plane and substantially parallel spaced faces, a rigid plate secured against one of the faces of said pad with a narrow portion of 55 said pad exposed beyond the edge of said plate, and means for mounting said plate and said pad in angular relation to the soil working tool with only the exposed edge of said pad in contact with the soil working tool. 60

WILLIAM ELLIOTT.